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EXECUTIVE OFFICE OF THE PRESIDENT  
NATIONAL SECURITY RESOURCES BOARD

NSC REVIEW  
COMPLETED, 10/31/04

Port Capacity Protection Survey  
Report of  
Task Unit "B" - Alternate Port Facilities

March 30, 1951

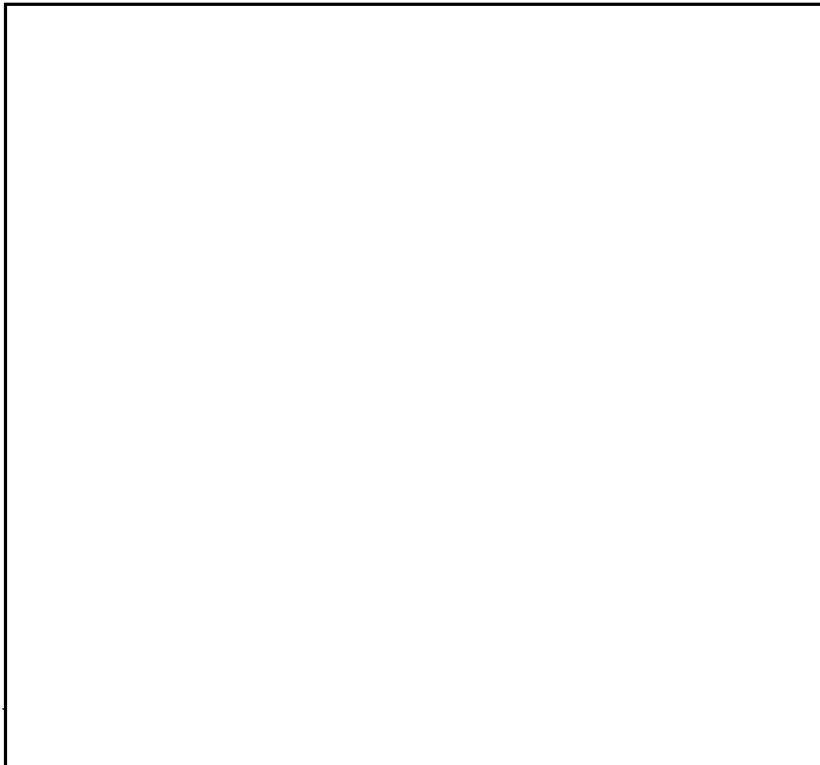
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APPENDIX A - Organizational Chart

APPENDIX B - Port Capacity Inventory

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### SCOPE

1. Successful prosecution of war under present and prospective conditions depends upon large scale movement through our ports. The purpose of studies being undertaken by the NSRB Port Capacity Protection Survey is to examine the necessity for and suggest the means of providing the continuing adequacy of port capacity to meet war requirements despite possible enemy efforts to impair it. The task assigned to Task Unit "B" is to assure adequacy of port capacity by preparing a plan for the utilization of alternate ports in the event of the destruction of a port in whole or in part.

2. For the purposes of this report, a Port Area is considered to be a zone, contiguous to or associated in the traffic network of a seaport, which contains (or may have added) the facilities, equipment and manpower necessary to accomplish the transshipment of materiel and personnel between the various instrumentalities of inland transportation (air, rail, highway, waterway and pipelines) on the one hand, and ocean vessels or overseas air transport on the other.

3. In its approach the Task Unit recognizes that a plan of this nature must assume a wide variety of situations. It must contemplate the possibility of the partial or complete destruction of any port or port area, or the denial of the use of a port or a portion of its facilities. Resulting loss of port capacity must be replaced with a minimum loss of time and with the least possible impact on the transportation system of the country. The loss may be made good by the use of other ports, or in extreme cases, by improvising facilities and by the use of lighters and wharves not usually considered suitable for ocean traffic. Any plan must include the reallocation of facilities, the designation of the alternate ports to be utilized, the reallocation of ocean tonnage, the diversion of rail and highway traffic destined to ports, and the possible need for detention ports and anchorages.

4. For the purposes of this study only, the ports are divided into three categories; major, intermediate and minor. The major ports are those having a daily net export capacity of over 400 rail cars or 12,000 short tons; intermediate ports are those having a daily export capacity of less than 400 rail cars or 12,000 short tons but more than 100 rail cars or 3,000 short tons; minor ports are those having a daily net export capacity of less than 100 rail cars or 3,000 short tons.

5. A number of alternate ports have facilities for handling bulk commodities such as grain, coal and petroleum products, and as the capacity of these alternate facilities is adequate for any anticipated need, ports of this type are not given consideration in this report except to the extent that an inventory of capacity is included. Special consideration is given to ammunition facilities since there is an apparent shortage of this type of facility without regard to the need for alternates. The study is therefore limited in scope to alternate port plans for general cargo and ammunition.

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6. This Task Unit concludes that there is a very definite need for coordinating the use of ports. It is assumed that some form of control organization will be established to effect this coordination. It is assumed that the control of the ports will include control of facilities, control of thru-put and control of export shipments from point of origin to shipside. Recommendations include the establishment of a War Transport Administration with the control of port utilization vested in that agency. It is assumed by this Task Unit that a plan for setting up and using alternate ports will be effected by an organization or agency established to coordinate the use of ports. It is imperative, however, that the control agency given the responsibility for assuring the continuation of port capacity have the positive means of controlling diversions and utilization. Advisory committees may be used, but authoritative control must be vested in a single agency.

7. It is not contemplated that an organization established for port utilization and the effecting of an alternate port plan will have any claimant responsibilities.

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WORLD WAR II EXPERIENCE

8. The first impression is that the United States is without World War II experience in the use of alternate ports. The A-bomb was not used to deny the use of ports during World War II nor did the United States ports suffer from bombardment. However, there is a great deal of history growing out of World War II operations which is of great value in determining the need for and means of utilizing alternate ports. It is necessary to briefly recount the experience of port utilization in order to have something upon which to base future plans.

9. At the outset of World War II little difficulty was encountered in finding adequate port capacity, primarily because there were neither ships enough to use more than the few major ports in support of our overseas operations nor a sufficient quantity of finished munitions to use more ships and more port facilities. The Army and Navy concentrated their operations in major ports such as New York, San Francisco, New Orleans and Seattle. Because of this concentration of Army - Navy business, it became necessary to transfer some of the commercial operations to alternate ports. Obviously, none of the shippers willingly moved their operations to another location, particularly when such a transfer resulted in increased cost. During the early days of the war the lend-lease program began to grow and movements followed the normal commercial pattern with the heaviest burden being placed on New York. The inevitable result was that rather quickly the facilities of this, the greatest port in the United States, were taxed to the utmost and there was danger of congestion.

10. As the production program materialized and as ships began to come off the line, the immediate demands of the Army, Navy and lend-lease began to overflow the primary ports. It was then that arbitrary allocation of cargoes to other ports revealed that, in a number of instances, the alternate port selected was unable to immediately assume a proper share of the load. The reason for this was the fact that as soon as there was less business in the port than was needed to maintain the working force, that force drifted to other industry or to another port location. When an attempt was made to use the port at something approaching capacity, it was found that the labor force no longer existed. There were many examples of this during the war including Baltimore, Maryland; Portland, Oregon; and Los Angeles, California.

11. It has been noted that an early need for utilizing alternate ports, or at least in moving a part of the load to other ports, resulted solely because of the volume of the Army and Navy movement. Other causes were noted, the most effective being enemy submarine action, which necessitated the use of convoys. The limited availability of escort vessels required that convoys be handled from the fewest number of ports. It became necessary then, because of the submarine action and its resulting

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effect, to arbitrarily place certain cargoes in particular ports. For example, when the submarines became extremely active off the mouth of the Mississippi, shipments from New Orleans practically stopped. Shipments to troops in the China-Burma-India area were moved at various times from New York to Charleston, South Carolina; to New Orleans, Louisiana; and eventually to Los Angeles, California. For a brief period of time the supply of Panama was handled through Los Angeles. All of these distortions of normal trade routes threw unanticipated burdens on the lines of communication and when the alternate ports were not prepared to receive them tended to break-down the supply system.

12. Drastic action was needed to prevent congestion of the major ports. There was no organization in existence capable of dealing with this situation, or one which had the necessary control authority to handle it. Out of this need there was formed within the War Shipping Administration, a port utilization group which allocated tonnage to the several ports. Thus, when the facilities of New York were all being utilized, the Port Utilization Committee programmed certain parts of the British export shipments to Jacksonville, Florida and to Savannah, Georgia. When the North Atlantic route became too hazardous for shipments to Russia, the program was moved to Portland, Oregon from Baltimore, Maryland. Other problems were dealt with accordingly. Admittedly, the Port Utilization Committee did not have authority, but dealt with the situation by enlisting the cooperation of all agencies. The method used by the committee in dealing with these problems was to first ask the Army and the Navy where they proposed to operate and the volume they expected to put through each port, and then to distribute the remaining port capacity as best they could.

13. At approximately the same time the Port Utilization Committee was beginning to function, the Transportation Control Committee was formed by representatives from the War Shipping Administration, the O.D.T.\*, the Army, the Navy and the British Ministry of War Transport. This voluntary group, using the authority resting with the O.D.T., controlled the movement of export shipments. Obviously, it was essential that there be complete coordination between the Port Utilization Committee and the Transportation Control Committee.

14. The third phase of necessary control of port utilization is the allocation of physical property. That was dealt with by the Ocean Shipping Section of the Army - Navy Munitions Board. This group had some authority with regard to the allocation of piers and other waterfront property, but it was too late in being recognized and was too slow in its ordinary means of operation. Actually, the allocation of physical properties should have been made before the necessity arose for the use of alternate ports and the failure to have made such allocation in advance resulted in much delay and considerable extravagance.

15. During World War II, it was definitely established that the availability of ports or the lack thereof had a major influence upon the conduct of the war. It was demonstrated that an all-out effort throws a tremendous

\*Office of Defense Transportation

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burden on the port facilities. All of the ports accounted for peak performances some time during the war years. The so-called major ports and those normally considered as available to serve particular trade routes were not capable of carrying the entire burden, even in the absence of enemy action.

16. It was necessary, toward the end of World War II, to schedule a considerable portion of the Army - Navy shipments to the Pacific out of Gulf and Atlantic ports, as the entire capacity of the West Coast terminals would have been exceeded in the all-out effort against Japan. The Army and Navy, and the War Shipping Administration were able to make use of these alternate ports largely because of their willingness to cooperate. Unfortunately, in bringing this about, the military services, operating independently, frequently took over for exclusive use facilities which were never fully employed. Also, they concentrated all of their early efforts on the major ports so that the intermediate and minor ports were permitted to dry up. All of this happened without influence of bombing.

17. Every lesson learned in attempting to promptly divert cargoes from one port to another and in trying for complete utilization of the transportation net is of definite value in preparing a plan for using alternate ports to make good capacity loss as a result of enemy action.

18. The only atom bomb experience of World War II is adequately recorded with regard to Nagasaki and Hiroshima. That is sufficient to convince us that a direct atom bomb strike on any of our major ports would disrupt operations there to a considerable degree. We also may refer to records of heavy air attacks using conventional bombs. For example, the Port of Hamburg, Germany was attacked with great force in seven raids in a period of ten days. A summary of the principal damage shows that the population was reduced by 64% while 40% of the houses were destroyed, 50% of the warehouses and transit sheds in the port area were demolished and at least 20% of the harbor facilities were destroyed. Reconstruction and recuperation were slow, principally because of the evacuation of skilled labor and the destruction of stocks of building materials. Industrial production dropped from 100% to 50% and did not recover completely for nine months. Railroad tonnage dropped from 100% to 13% and never went above 64% thereafter. Ocean shipping dropped to 56% and never exceeded 87% thereafter.

19. Ammunition piers were at a premium at the outset of World War II. There were no suitable facilities for handling large quantities of this commodity. At the outset, because of the urgent need to make shipments of explosives as they were available and needed, regular general cargo piers were used. Immediate steps were also taken to build suitable ammunition loading ports. The Army constructed piers at Castle Island, Boston; Caven Point, New York; Hog Island, Philadelphia; Curtis Bay, Baltimore; Theodore, Alabama; Long Beach, California; Benecia Arsenal in San Francisco Bay; Beaver, Oregon on the Columbia River; Mukilteo on Puget Sound; and at

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Prince Rupert, British Columbia. The Navy built ammunition facilities at Port Chicago, on San Francisco Bay, and at Port Monmouth, just out of New York Harbor. Some commercial facilities were used, the most notable example being at Searsport, Maine, where a potato pier was modified to handle ammunition. All the ammunition piers listed made it possible to discontinue the handling of explosives over general cargo piers. Few of them were satisfactorily located from the standpoint of safety distances so that, as soon as possible, they were either no longer used, or the volume moving over them was greatly reduced. The volume was very heavy at the peak, reaching something in excess of 645,000 tons per month.

20. The proximity of the originally selected sites to centers of population was such that some unfortunate situations were created. At Philadelphia it was necessary to discontinue the use of the Philadelphia airport since the planes had to approach over the area in which carloads of ammunition were being held. In Boston and New York the piers were so located that they were considered to be a hazard and as soon as the Port Monmouth facility was completed, the ammunition load on these two points was materially reduced. The Benecia Arsenal wharf was so close to the Southern Pacific bridge across Carquinez Straits that it was soon used only to a very limited degree. A new pier was being constructed on the Marin County side of San Francisco Bay but when the war ended all work was discontinued. The pier at Theodore, Alabama, was well situated so far as security measures were concerned, but was so far out of the normal transportation net that it received little use during months of the war. The same applies generally to Beaver, Mukilteo, and Prince Rupert, although all of these facilities were in demand for returning ammunition immediately after the cessation of hostilities.

21. The experience in the use of these ammunition piers forcibly demonstrates there must be constructed in peace-time and available at the beginning of any emergency, facilities suited to the handling of ammunition. These facilities must be such as to conform to reasonable safety considerations. All the ammunition piers were provided with back-up storage and hold yards, which are essential if large quantities of ammunition are to be handled. There was a constant conflict between the necessity for efficient operation, as opposed to the extreme distances essential for safety. Piers were as near large centers of population as possible, because of the need for an adequate labor supply, and yet had to be at a considerable distance from population centers alongside the water where deep sea vessels could be brought to berth.

22. The control of export traffic was early established under the supervision of the Transportation Control Committee and was effected by means of the issuance of permits for the movement of all export freight moving in carload lots by rail. Consideration was given to the need for issuing permits for export freight moving via highway equipment but it was never considered necessary to issue permits for this type of movement. At the larger ports, more especially New York, because of the very large metropolitan area, a system of traffic control stations or check points was

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set up so that when highway equipment was moving toward the port with export freight, the driver could be checked somewhere on the perimeter of the congested area and there routed directly to the area or pier from which these materials would be loaded. This resulted in a very great saving of time and the prevention of useless cross hauls.

23. The traffic control system eventually established for rail movements embraced a dual control exercised through the issuance of block releases and unit permits. The block releases were issued by the Transportation Control Committee (consisting of representatives of the Army, Navy, Office of Defense Transportation, War Shipping Administration, and British Ministry of War Transport). The committee met daily in the Office of the Chief of Transportation, and its executive and staff were appointed by him. Based on estimates of the supplies which would be ready for export and the shipping that would be available for lifting them, the block releases indicated the maximum tonnage that could be shipped to each port during a given month. Having determined the block releases in advance of the month, the Transportation Control Committee was authorized to change the tonnages, require that specific shipments be held or diverted, and direct that embargoes be placed against specific ports, as subsequent developments might warrant.

24. The authority to issue unit permits for all Government export freight, except that of the Navy, was vested in the Traffic Control Division of the Office of the Chief of Transportation. Such permits were issued for specific shipments upon applications filed by the shippers. The Navy permitted its own shipments, and the War Shipping Administration was authorized to issue permits for commercial shipments, which it accomplished through the Association of American Railroads acting as its agent. The sum total of unit permits for shipments to arrive at a given port during a given month could not exceed the pertinent block release. The railroads were directed not to accept shipments at points of origin unless unit permits had been issued to cover them. The War Shipping Administration introduced another safeguard by issuing forwarding authorizations for all lend-lease shipments, in order to synchronize the arrival of cargoes at the ports with the availability of vessels with space to receive these cargoes.

25. The Transportation Control Committee and the Traffic Control Division worked in closest harmony in order to insure that all possibilities of congestion at the ports or on the rail lines serving the ports were avoided. Daily detailed reports were received from the Army port agencies regarding carloads of freight in the ports "on wheels," carloads in port storage, the progress of the ships then loading, and cargoes en route to the seaboard. The railroads, through the Port Traffic Office of the AAR, also provided helpful analyses of carloads actually at the ports. The authority to control traffic was exercised not only to hold and divert shipments, but also to expedite those which were needed at the ports to complete ships then loading or to meet new military or lend-lease priorities.

26. Despite the unusually heavy movement of military supplies through the eastern ports during the Army's drive through France and into Germany, fluid traffic conditions were maintained at all times. The same was true at the western ports during the build-up of supplies at the Pacific bases

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in preparation for the final drive against Japan. This accomplishment is the more noteworthy in view of the progressive increase in export freight handled at the ports because of the war. Data prepared by the Association of American Railroads indicate that as between the year 1940 and the early months of 1945, the average number of carloads of export freight (excluding coal, grain, and bulk liquids) unloaded daily at Atlantic coast ports increased from 1,300 to 3,410, while at Pacific coast ports the daily average increased from 203 to 1,847 carloads.

27. It is unfortunate that an effective over-all control system was not established until some time after we had entered the war. Had it been functioning earlier, the confusion of those early months would have been greatly reduced. Also, the fine accomplishment of the system should not conceal shortcomings. One inherent fault was that the issuance of unit permits was divided among three agencies - the Army, Navy and the War Shipping Administration. It is essential that these functions be centrally controlled in order that movements into port areas may be successfully regulated in accordance with traffic capacities at any particular port at any particular time. Obviously, one issuing agency could have applied the control more uniformly.

28. There were, at the beginning, no established points for the transfer of air freight to ocean carriers, nor for the loading of set up airplanes. Air freight was moving in very limited quantities and comparatively few airplanes were being shipped set up. As the volume of air freight increased, it became necessary to establish some type of control station to deal with the movement control aspect of high priority freight. This was done by having movement control offices at the larger aerial ports of embarkation in the vicinity of ocean ports of embarkation. By the end of the war, the volume of this movement was great enough to justify this special treatment.

29. The loading of set up planes in large numbers presented a problem which required careful attention from all interested agencies. There was a tremendous volume of this type of movement by the end of the war when more than fifty per cent of all aircraft were being sent overseas on surface carriers. The Air Force perfected a means of processing the planes so that they were protected from corrosion. It was necessary to fly the planes to the seaboard, then to have processing plants adjacent to the airport, in turn adjacent to a dock or wharf where ships could be loaded or lighters could be employed in transferring the processed airplane to the ship. The matter was further aggravated by the decision to utilize deck space on tankers to carry the planes; this not only required the building of special structures on the deck to carry the planes but also required that the planes be immediately available and capable of being loaded promptly in order that there be no delay in the highly essential movement of the tanker convoys. Planes were loaded at a number of ports, but the largest volume moved through New York, Hampton Roads, Los Angeles and San Francisco.

30. Some experience was gained in World War II in the use of improvised facilities. The Bureau of Yards and Docks, Navy Department, developed a basic pontoon rectangular steel box element 5' x 5' x 7'. Such pontoons

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were assembled into strings to form barges, tugs, causeways, drydocks, car ferries, bridges, piers and wharves. They were used successfully throughout the war. Also, timber piers were constructed from standard packaged units. These basic pier units 40' x 500' were utilized to build temporary wharf and pier structures to meet local requirements.

31. The invasion of Northern France in June 1944 brought into being large scale artificial harbors. Such were constructed at two of the five beaches where Allied Forces landed. The elements of these harbors were concrete cellular caissons and ships (sunk to form an outer harbor), pier heads (on spuds which raised and lowered with the tide), floating bridge elements (which connected the pier heads with the shore), sunken causeways (which extended to sufficient depths to accommodate landing craft at all phases of the tide), and Rhino Ferries (50' x 100' pontoon barges provided with outboard propulsion units).

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